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Understanding the Relationship Between Physical Environment, Price Perception, Customer Satisfaction and Loyalty in Restaurants

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Abstract

The design of food and beverage businesses in the world has started to change, as well as the taste element, they have started to be evaluated in terms of physical elements. It is a matter of curiosity how this type of businesses, which stand out in terms of physical environmental factors, shape the perception of the customers' prices. How are the prices of the businesses that stand out in terms of decoration, layout and ambience are perceived by the customers? This study aims to reveal the relation between restaurant's physical environment and price perception, while also revealing the effect of price perception on satisfaction and loyalty. In this context, data were collected from 475 people who experiencing first class restaurants in Istanbul through questionnaires between March 2017 and May 2017. As a result of the data obtained, it was concluded that there was no significant relationship between both ambiance and decoration and price perception, while a significant relationship was found between layout and price perception. Another important finding of the study is that the price has an effect on satisfaction but has no relation with loyalty.

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INTRODUCTION

In the restaurants, the service environment consists of both tangible (food and physical facilities) and intangible (employee-customer interaction) elements. And these two factors affect satisfaction and loyalty (Ryu & Han, 2010). In recent years, service providers have been focusing on the factors that affect customer loyalty (Parasuman & Grewal, 2000; Han & Ryu, 2009; Ozdemir-Guzel & Dinçer, 2018). One of the factors affecting customer loyalty is customer satisfaction (McDougall & Levesque, 2000; Han & Ryu, 2009; Ozdemir-Guzel & Dinçer, 2018). However, customer satisfaction and loyalty are affected by price and physical environment (Knutson & Patton, 1995; Varki & Colgate, 2001; Nguyen & Leblanc, 2002; Reimer & Kuehn, 2005; Han & Ryu, 2009; Özdemir-Güzel & Dinçer, 2018).

Moreover, the number of food and beverage company in the world and Turkey are increasing. This situation leads to very intense competition. Businesses have to differentiate in an intense competitive environment (Kotler, 1973). In addition to the personalized service, businesses are required to analyze with a holistic perspective all the elements that make up the value chain, included and implemented them into strategic marketing plans. The physical environment is one of the elements that differentiates food and beverage businesses. While businesses are trying to attract attention with their physical environment, they also aim to ensure their satisfaction from the hedonic point of view (Özdemir-Güzel & Dinçer, 2018). When it comes to physical environment elements in restaurant businesses, it is seen that different elements are classified. However, with its most general expression, physical environment elements; It consists of "ambiance", "space/function", "signs, symbols and artifacts"(Bitner, 1992; Küçükergin & Dedeoğlu 2014).

Loyalty is an output related to the profitability and sustainability that businesses emphasize. Especially, it is more difficult to create loyal customers in the service sector because of the nonpyhsical feature of the sector. Physical environmental elements are often used to embodying the service. In this context, the relationship between physical environment and price perception and the effect of price perception on satisfaction and loyalty is a matter of curiosity.

This study examines how food and beverage businesses, which have recently come to the fore with their decorations and various designs, are perceived by consumers in terms of price perception. Do consumers prefer a restaurant because its physical environment is well-designed? Doesn't a consumer who chooses a business with a well decoration feel sensitive to the high amount he pays due to the physical environment? In short, is there a relationship between physical environmental elements and price?

There are studies investigating the relationship between physical environment and price perception in the literature (Ryu & Han, 2010; Küçükergin & Dedeoğlu, 2014). However, the relationship between the physical environment and price has not been sufficiently defined. However, the effect of price perception on satisfaction and loyalty is still not clear both theoretically and practically. In order to fill this gap in the literature, this study is examined. Moreover, it maintains its originality in terms of implementation.

This study is aimed at revealing the price perception of customers who prefer restaurants that come to the fore in terms of physical environment, and to determine the effect of this situation on customer satisfaction and loyalty.

Literature Review

Pyhsical Environment

The first definition made for the physical environment was by Kotler. Kotler (1973, p. 50) evaluated physical environment elements under the concept of atmosphere and defined the atmosphere as the conscious design of an environment to impress consumers. Another concept related to the physical environment is Bitner's servicescape concept. Bitner (1992, p.58) defines the concept of "servicescape" as a man-made environment. It is stated by Hoffman and Turley (2002, p.35) that the physical environment consists of both tangible (such as building, decoration, furniture, etc.) and intangible (ambient temperature, smell, color, music) elements. In addition, it is seen that the concept of physical environment has a place in the literature with different names. Some of these are atmosphere, environmental psychology, pyhsical environment, servicescape, store atmospheric, store environment, dinescape (Kotler, 1973, Mehrabian & Russell, 1974; Baker, 1987; Bitner, 1992; Grewal & Parasuman, 1994; Crowley and Henderson, 1996; Hoffman &Turley, 2002; Ryu & Jang, 2008).

Physical environment factors become an important factor in influencing consumer behavior, creating a perception of quality and image, and obtaining hedonic value (Ozdemir-Guzel & Dinçer, 2018). Consumers can choose a business they will go to for the first time by paying attention to the physical environment elements. For businesses, while playing an important role in creating consumer satisfaction and loyalty, it also offers an opportunity for competition (Kotler, 1973, Ariffin et al. 2012).

Physical environment elements, which are extremely important, have been studied by different authors in the literature. While Kotler (1973) classifies the atmosphere as visual, aural, olfactory and tactile, Baker (1987) atmosphere is ambience (air quality, noise, cleanliness, smell), design (architecture, order, comfort, emblem, style, material) and social factors (behavior and number of customers and employees). Among these classifications, Bitner (1992), which is the most used in the literature, is the physical environment called "Servicescape". The concept was examined under three dimensions as “ambient”, “space/function”, “signs, symbols and artifacts”. Ambiance from these dimensions; temperature, noise, music, lighting, odor, space and function; It covers all kinds of layout, furnishings and equipment, signs, symbols and artificats include signage, personal artificats, style of decor and etc. Turley and Milliman (2000) examined the atmosphere in five sub-dimensions: exterior, general interior, layout and design, point of purchase and decorations, and human variables. Physical environment elements also differ according to the area studied. Lucas (2003) classified the physical environment of casinos as layout navigation, cleanliness, seating comfort, interior decor, ambient. Defining the physical environment of luxury restaurants as Dinescape, Ryu and Jang (2008) stated that they are facility aesthetics, lighting, ambiance, layout, table settings and service staff.

Relationship Between Pyhsical Environment and Price Perception

Price is an important variable that affects consumers' purchasing preferences. Perceived price is the price that the consumer is willing to pay. In other words, it is sacrifice. (Zeithaml, 1988). The price is evaluated psychologically and rationally by consumers. While psychological factors include reputation and image and rational factors are quality and value (Kurtuluş & Okumuş, 2006). The relationship between the physical environment and price is also psychologically addressed. In the literature, there are studies examining the relationship between the physical environment and price of restaurants. In addition, the relationship between the physical environment and perceived

value includes the relationship between the physical environment and perceived price (Han & Ryu, 2009). Han and Ryu (2009) states that the price perception is affected by the physical environment elements and the decoration affects the most. In the study conducted by Küçükergin and Dedeoğlu (2014) for fast food restaurants the effect of the physical environment on price perceptions and the tendency to repurchase through price perceptions was examined. They concluded that the decoration does not affect the perception of price, and the layout and ambiance affect the perception of price. Also, the effect of price perception on the intention to repurchase was found to be positive and meaningful. In the light of the researches conducted in the literature, hypotheses established by assuming that the physical environment affects the price perception;

H1: Decor has an positive impact on price perception.

H2: Ambient Conditions has an positive impact on price perception.

H3: Layout has an positive impact on price perception.

Relationship Between Price Perception and Customer Satisfaction & Loyalty

It is known that there is a positive relationship between price and satisfaction and loyalty (Nguyen& Leblanc, 2002; Reimer &Kuehn, 2005; Ryu & Jang, 2007; Han & Ryu, 2009). This relationship is related to whether the price is fair or not. Customers are satisfied with fairness when making price perception and realize repurchase. Price perception shapes consumer behavior. The price perception can create a satisfied customer as well as a dissatisfied customer (Jiang & Rosenbloom, 2004, Han & Ryu, 2009). Studies conducted in the literature show that the price perception is effective in the tendency to buy again (Bei & Chiao, 2001; Jiang & Rosenbloom, 2004). Bolton and Lemon (1999) states that the fairness or unfairness price has a significant effect on customer satisfaction and loyalty. Han and Ryu (2009) found that there was a significant relationship between price perception and satisfaction. One of the results is that the price directly or indirectly affects loyalty. Chen et al., (2011) states that price perception in the fast food sector has a significant effect on customer satisfaction. In the light of the literature, it can be inferred that price perception is a significant driver of customer satisfaction and loyalty.

H4: Price perception has a positive effect on customer satisfaction.

H5: Price perception has a positive effect on customer loyalty.

Many studies support a significant relationship between customer satisfaction and loyalty (Hallowell, 1996; Anderson & Fornell, 2000; Oh, 2000; Babin et al., 2005; Ladhari et al., 2008; Han &Ryu, 2009; Sun & Lin, 2010; Jalil et al., 2016). Satisfied customers are assumed to be potential loyal customers. There are studies defending the opposite of this view. It is stated that the dissatisfied customer may also be a loyal customer. The absence of any other alternative can be effective in this situation. Oh (1999) states that satisfied customers have a high tendency to buy and recommend again. Weiss et al., (2004) concluded that food quality and physical environment affect satisfaction and support the trend of repurchase in their satisfaction. In their study, Han and Ryu (2009) stated that customer loyalty is achieved through the physical environment of restaurants, price perception and customer satisfaction. As a result, in the light of the literature, hypothesis was established assuming that satisfaction is the determining factor in affecting loyalty;

H6: Customer satisfaction has a positive effect on customer loyalty.

Methodology

Research Model

The research model consists of physical environment elements (decor, ambient conditions and layout), price perception, customer satisfaction and loyalty.

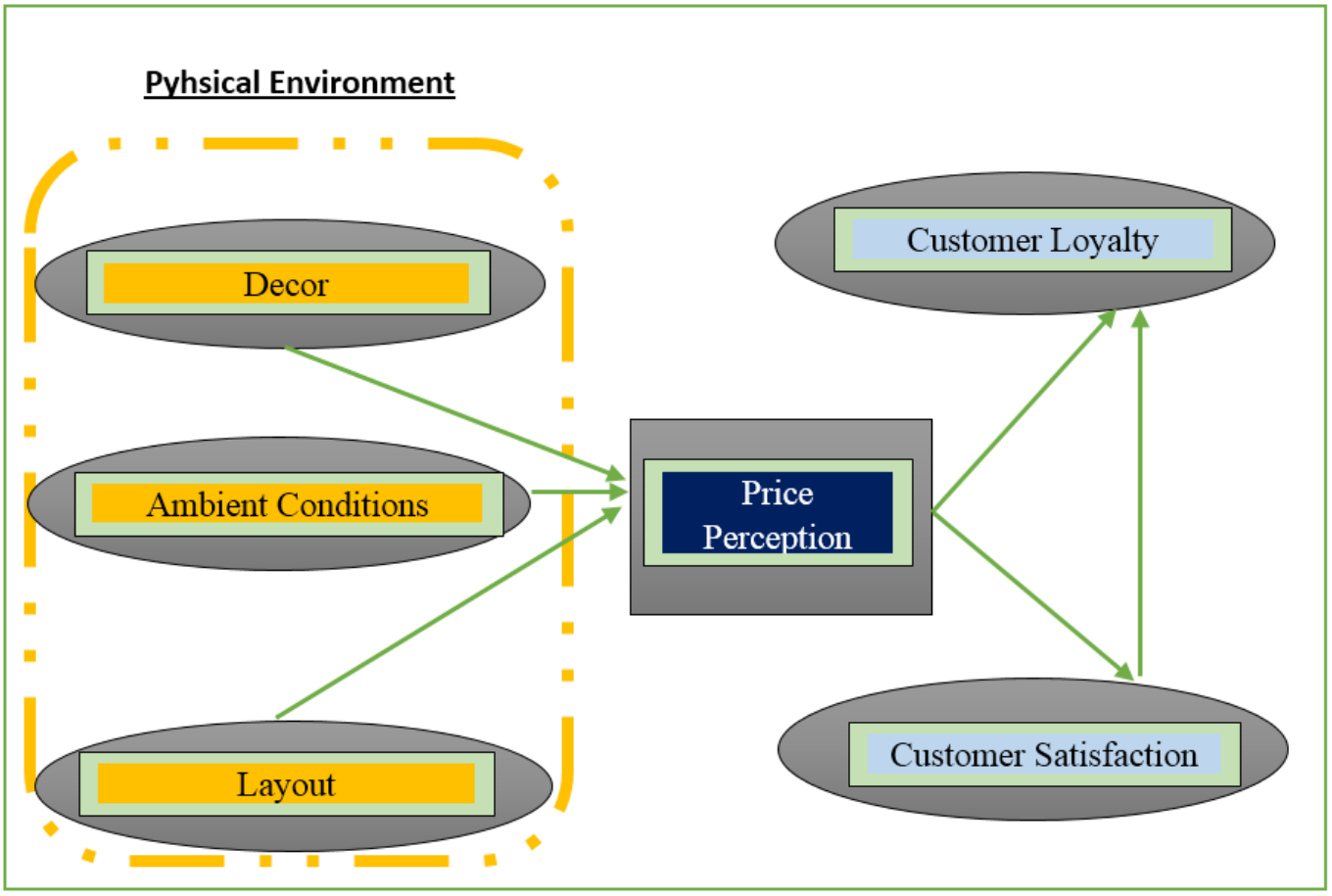

Figure 1. Research Model

Measurement

In this study, it is aimed to examined the relationship between restaurant's physical environment and price perception, and the effect of price perception on customer satisfaction and loyalty in first class restaurant business in Istanbul. For this purpose, quantitative research method was used. The questionnaire used in the research contains 23 items. Physical environment has three constructs and each of the three constructs contains 3 items. Price perception, customer satisfaction and loyalty have one construct and each them contains 3 items. These items were measured using the 7-point Likert scale *(1=Strongly Disagree, 7=Strongly Agree)* in the structured questionnaire. In addition, *"0 = No Opinion"* option was added to increase the reliability of working in the questionnaire form. The multi-item measures for physical environment, price perception, satsifaction and loyalty were adapted from the scales of Oliver (1980), Han and Ryu, 2009; Ryu and Han (2011). The scale and the cited studies are given in Table 1.

Table 1. Items and Cited

	Construct	Item	Label	Cited
Physical environment	**Decor**	**D**3	Colors used create a warm atmosphere.	Han and Ryu (2009:498)
		D2	Wall decorations are visually appealing.	Han and Ryu (2009:498)
		D1	Paintings/pictures are visually attractive.	Han and Ryu (2009:498)
				Han and Ryu (2009:498)
	Layout	**L**3	Layout makes it easy for me to move around.	Han and Ryu (2009:498)
		L2	Layout gives me enough tangible privacy.	
		L1	Seating arrangement gives me enough space.	Han and Ryu (2009:498)
	Ambient Conditions	**A**4	Air aroma is enticing.	Han and Ryu (2009:498)
		A3	Temperature is comfortable.	
		A6	Furniture (e.g, dining table, chair) is of high quality.	
Price Perception	**Price Perception**	**P1**	The price at this restaurant is reasonable	Han and Ryu (2009:498)
		P2	The prices paid fully meet the service provided.	
		P3	The price charged by this restaurant is appropriate	Han and Ryu (2009:498)
Customer Satisfaction	**Customer Satisfaction**	**CS3**	Dining in first class restaurant establishments is the right choice.	Oliver (1980)
		CS2	First class restaurants always meet my expectations.	Ryu and Han (2011: 609)
		CS1	Overall, I am satisfied with first class restaurant.	Ryu and Han (2011: 609)
Customer Loyalty	**Customer Loyalty**	**CL3**	I would more frequently visit first class restaurant.	Hutchinson Lai and Jang (2009)
		CL2	I would like to come back to first class restaurant in the future.	Ryu and Han (2011: 609)
		CL1	I would recommend first class restaurant to my friends or others.	Ryu and Han (2011: 609)

Data Collection and Analysis

The data was collected from customers at first class restaurants which have a tourism operation certificate in Istanbul. In this study taking a total inventory count. According to Istanbul Provincial Directorate of Culture and Tourism (July 21, 2016), the data collected from twenty third first class restaurants which serving World cuisine. Data collection process continued between March 2017 and May 2017.

A field survey approach was used and A total of 456 questionnaries were collected on the volunteer customers who exit the restaurants by first researcher. After deleting incomplete and faulty responses, 434 questionnaires were used for the data analysis. The collected data were analyzed using IBM SPSS Statistics 25 and AMOS 20. A exploratory (EFA) and confirmatory factor analysis (CFA) was used to test data reliability and construct validity checks. Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE) were used to assess the reliability and the convergent and discriminant validity of measurement scales. Structural equation modeling (SEM) was conducted to test overall fit of the proposed model and test hypotheses.

Findings

Profile of the Respondents

61.1% of the participants are female and 39.9% are male. Considering the age distribution, there are 333 between the ages of 16-35 and 101 between the ages of <35-68. When analyzed in terms of educational status; 41.5% undergraduate, 34.3% associate degree, 16.4% graduate, 7.6% high school 2% others. While 69.8% of the participants are single, 30.2% are married. 44% of the participants are comprised of private sector, 39.2% of students and 12.2% of public sector. When the income levels are analyzed 37.1% earn enough to make a living, 27.9% save their money, 18.7 % can buy luxury goods and 7.8% was able to buy anything they wanted.

Measurement Model

Firstly, the items about the physical environment directed to the participants in the questionnaire will be tried to be revealed in a more brief and meaningful way with the help of exploratory factor analysis. Kaiser-Meyer-Olkin (KMO) and Bartlett tests were used to determine whether the data set to be used is suitable for factor analysis. The closer the value obtained as a result of the KMO test to 1 indicates that the data set is suitable for factor analysis. As shown in Table 2, the result of the KMO test performed on the data set of the physical environment has been found as 0.779 and it can easily be said that the data set is suitable for factor analysis since it is close to 1.

Table 2. Kaiser-Meyer-Olkin (KMO) and Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.779
Bartlett's Test of Sphericity	Approx. Chi-Square	1748.665
	df	36
	Sig.	.000

As seen in Table 2, another test other than KMO test is Bartlett's Test of Sphericity test. This test shows whether there is a relationship between all the items used in factor analysis. In Bartlett's test, if the level of significance, that is, p value is less than 0.05, there is a significant relationship between the variables. The significance level of this data set's Bartlett's test has reached 0.000; this result shows the existence of a significant relationship between the variables in this data set. In the exploratory factor analysis, the principal components method and varimax rotation were chosen as the method. As a result of the factor analysis, 3 factors with an eigenvalues value close to and above 1 emerged. Table 3 shows the total explained variance of physical environment.

Table 3. Total Explained Variance of Physical Environment

Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.500	38.889	38.889	3.500	38.889	38.889	2.550	28.331	28.331
2	2.095	23.275	62.164	2.095	23.275	62.164	2.192	24.351	52.682
3	1.068	11.869	74.033	1.068	11.869	74.033	1.922	21.351	**74.033**
4	.648	7.203	81.235						
5	.458	5.086	86.322						
6	.453	5.035	91.357						
7	.345	3.838	95.195						
8	.221	2.461	97.655						
9	.211	2.345	100.000						
Extraction Method: Principal Component Analysis.									

According to Table 3, as a result of the EFA conducted for the physical environment scale, 3 factors emerged, and 3 factors explain 74.033% of the total variance. Since factor loads are less than 0.5, 1 item from the layout and decor, and 3 items from the ambience factor are extracted. In the table 4, all factors are shown with the items and the factor loads, means and standard deviations of the items. In addition, Cronbach's Alpha values of all factors are also included in the same table. Cronbach's Alpha values of layout, ambience and decor factors are respectively 0.908, 0.717, 0.809, and all above the reliability limit.

Table 4. Descriptive Statistics of the Physical Environment and Factor Results

Factors	Factor Loadings	Average Factor Value	Cronbach Alpha	Mean	Standard Deviation
Layout		**4.776**	**.908**		
L3	.833			4.86	1.477
L2	.860			4.76	1.632
L1	.836			4.70	1.632
Ambience		**5.332**	**.717**		
A3	.731			5.49	1.268
A6	.612			5.38	1.367
A4	.614			5.12	1.466
Decor		**5.829**	**.809**		
D3	.658			5.96	1.139
D2	.782			5.88	1.122
D1	.739			5.66	1.242

The study employed Anderson and Gerbing's (1988) two-step approach. After EFA, CFA was conducted . So the measurement model provided a good fit (CMIN/DF: 2,432, SRMR: 0,0403, GFI: 0,933, AGFI: 0,904, NFI: 0,936, CFI: 0,961, RFI: 0,918, RMSEA: 0,058). (Schermelleh-Engel vd., 2003:52). Table 5 shows the reability and validity of the constructs.

Table 5. Results of Measurement Model

Dimensions	Items	Factor Loadings	t-value	Cronbach Alpha	CR	AVE
Layout				,908	0.908	0.766
	L3	.867	22.905			
	L2	.895	23.936			
	L1	.864	22.905			
Ambience				.717	0.722	0.466
	A6	.594	10.190			
	A4	.720	11.108			
	A3	.724	10.190			
Decor				.809	0.814	0.596
	D3	.673	13.001			
	D2	.847	13.105			
	D1	.785	13.001			
Price Perception				.869	0.871	0.693
	P3	.822	19.328			
	P2	.826	18.904			
	P1	.846	19.328			
Satisfaction				.875	0.876	0.702
	S3	.849	19.484			
	S2	.846	20.409			
	S1	.819	19.484			
Loyalty				.871	0.875	0.700
	L3	.805	19.043			
	L2	.845	21.016			
	L1	.858	19.043			

All Cronbach's alpha values exceeded 0.70, which suggests that internal validity was achieved. All composite reliabilities were above the recommended value of .70 (Nunnally & Bernstein, 1994; Hair et al., 1998, pp.611-612; Bryne, 2010). The results indicated a strong reliability of measures. All AVE values apart from Ambience exceeded the recommended value of .50 (Fornell & Larcker, 1981). However, it can be considered that the AVE value is less than .50 in the models (Ping, 2009, p.3). These findings indicated that construct reability and both convergent are significant (Fornell & Larcker, 1981).

Table 6. The Discriminant Validity Index Summary for the construct

Dimensions	**Layout**	**Ambience**	**Decor**	**Price Perception**	**Satisfaction**	**Loyalty**
Layout	**0.875**					
Ambience	0.271	**0.683**				
Decor	0.402	0.582	**0.772**			
Price Perception	0.201	0.097	0.296	**0.832**		
Satisfaction	0.568	0.256	0.186	- 0.040	**0.838**	
Loyalty	0.857	0.199	0.381	0.249	0.512	**0.837**

Referring to Table 6, the discriminant validity for all six constructs is achieved and significant (Fornell & Larcker, 1981, Awang, 2011).

Structural Model

According to the fit indices from the structural model results were at acceptable levels ($\chi 2/df=2.798$, RMSEA=0.064, CFI=0.948, SRMR= 0.086, GFI=0.92, RFI=0.906). Path analysis variable relationship regression weights are given in the table 7.

Table 7: Regression Weights

			Estimate	S.E.	C.R.	P
Price Perception	<---	Layout	,211	,075	2,827	,005
Price Perception	<---	Ambiance	,224	,155	1,447	,148
Price Perception	<---	Decor	-,112	,094	-1,191	,234
Satisfaction	<---	Price Perception	,367	,034	10,680	***
Loyalty	<---	Price Perception	,023	,033	,691	,490
Loyalty	<---	Satisfaction	,897	,063	14,202	***

According to Table 4, it is seen that decoration and ambience have no significant effect on price perception and price perception on loyalty. Accordingly, H3,H4,H6 hypotheses were supported and approximately 33% of the total variance in Satisfaction and 74% of the total variance in loyalty were explainable by their antecedents.

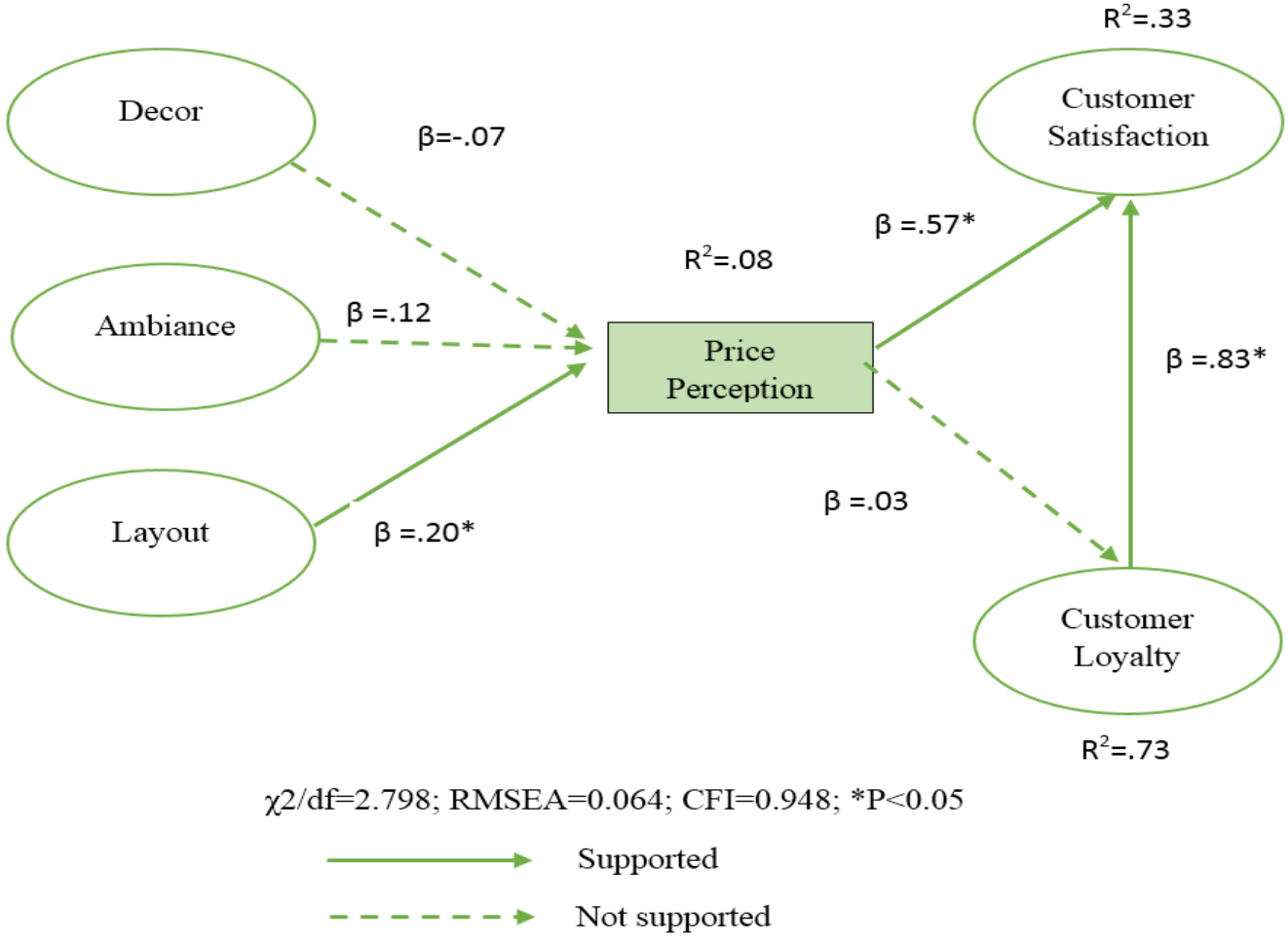

Figure 2: Structural Model

Disscussion, Conclusion and Implications

The aim of this study is to examine the relationship between price perception and decor, layout, ambience factors which are among the physical environmental elements, and to reveal the effect of satisfaction and loyalty through price perception. In this regard, this study provides an important contribution in terms of explaining the effect of the relationship between physical environment and price perception on satisfaction and loyalty. It allows understanding of these relationships, especially in first-class restaurant businesses.

In the research, six hypotheses were developed and these hypotheses were tested by structural equation modeling. H3, H4, H6 hypotheses are supported, and H1, H2, H5 hypotheses are not supported. It is concluded that there is a significant relationship between the layout factor which is one of the physical environment elements and price perception. This finding was consistent with previous studies identifying the role of physical environments and price perceptions (Han & Ryu, 2009; Ali et al. 2016). Decor and ambience have no significant effect on price perception. This finding is not consistent with the results of Han and Ryu's (2009). They found that decor and artificats and ambients conditions effect on price perception. On the other hand, it is in parallel with the finding of "decoration had no significant effects on price perception" which is the result of the study of Küçükergin and Dedeoğlu (2014).

The findings showed that price perception had a significant effect on customer satisfaction. This result go beyond previous studies, showing that percieved price was significantly related to customer satisfaction (Bolton & Lemon, 1999; Varki & Colgate, 2001; Han & Ryu, 2009; Jang & Namkung, 2009; Ali et al, 2016). Unlike the results of the

previous studies (Han & Ryu, 2009; Küçükergin & Dedeoğlu, 2014), price perception had no significant effect on loyalty. This emphasizes the importance of customer satisfaction in creating loyal customers, and the results of the our study support this output. It is concluded that customer satisfaction has a significant effect on customer loyalty. This is consistent with what has been found in previous studies (Babin et al., 2005; Han & Ryu, 2009; Jalil et al. 2016).

This study has been handled in the light of the studies in the literature. There are similar studies in the literature. The effect of the physical environment on price perception satisfaction and loyalty was directly examined, as well as the moderating effect of price perception. However, the authors of these studies stated that such studies should be carried out in different geographical areas in order to support the studies in their suggestions for future studies. In this context, no study similar to this study was found within its own geographical area. This study also differs from other studies in terms of its application area (in terms of preferring first-class restaurant businesses).

Managerial Implications

Physical environment is an important element for the businesses marketing. Undoubtedly, it positively affects the image of businesses. But is it just image perception? Does it affect the price perception? These study results will guide business managers and marketing experts. As a result of this study, it was concluded that layout, which is one of the physical environment elements, has an effect on price perception. This result can be said that customers prefer to eat in comfortable areas and it can be said that price perceptions are shaped according to these preferences. Businesses should pay attention to the layout. They should offer an environment where customers can be feel comfortable. Businesses that aim for profit are given importance to the number of tables per square meter. It is seen that the decor and ambience of a business has no effect on price perception. It can be said that the importance given to the decor and ambience of the businesses recently has been effective in the appearance of this result.

For businesses Customers need to be satisfied in order to create loyal customers in the long run. Satisfaction is related to the layout. The customers demand that the distance between the tables should comply with privacy, and the tables should be at a distance that will not be affected by each other's speech.

Limitations and Areas of Future Research

This study covers three dimensions of the physical environment. Future studies may carry out supportive studies for all the components that make up the physical environment. However, the electronic version of the physical environment can also be a research area.

Social environment, in other words, customer and employee interaction is also an important factor. Future studies may focus on the impact of loyalty by examining the social aspect of the physical environment.

While examining the effect of the physical environment on price perception, a detailed examination can be made by considering the socio-demographic variables. Are there any differences between the perceptions of first-time visitors and permanent ones? Or what is the effect of gender?

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